Scheduling System for confocal and FACS facility of BSBE discipline

Software Requirements Specification

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# Revision History

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# Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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# 1. Introduction

This SRS is regarding the web based development of scheduling program for 2 machines available in FACS and confocal Facility room School building of IITI. This program has to provide the availability each machine, their status and for booking slots to work on it for multiple spans of 2 hours by any user on payment basis.

## 1.1 Purpose

The purpose of this SRS is to keep track of what are requirements of software are, what is being used to build this software, What are applications, limitations of software, etc.

## 1.2 Scope

This subsection explains the scope of project and is as follows:

(1) Our software product is an online scheduling program.

(2) It will keep track of availability of 2 machines in FACS Facility room, their status and can provide booking slots to work for multiple spans of 2 hours on those machines on payment basis. It can help in booking a slot by any user and pay for it using authentication. It cannot give details of how to use or any details of those machines.

(3) Describe the application of the software being specified. As a portion of this, it should:

(a) Describe all relevant benefits, objectives, and goals as precisely as possible. For example, to say that one goal is to provide effective reporting capabilities is not as good as saying parameter-driven, user-definable reports with a 2 h turnaround and on-line entry of user parameters.

(b) Be consistent with similar statements in higher-level specifications (for example, the System Requirement Specification), if they exist. What is the scope of this software product

.

## 1.3 Definitions and Abbreviations

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Database | Collection of all the information monitored by this system. |
| Software Requirements Specification | A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. |
| Fluorescence activated cell sorting (FACS) | It is a laser or impedance based technology employed in cell counting, cell sorting etc. It is used mainly in the diagnosis of health disorders, especially blood cancers, but has many other applications in basic research, clinical practice and clinical trials. |
| Confocal Microscopy | It is an optical imaging technique for increasing optical resolution and contrast of a micrograph. It finds applications in life sciences , semi conductor inspection and materials science. |
| GUI | Graphical user interface which means the surface design which can be seen and interacted by user. |
| BSBE | Biological sciences and Bioengineering |
| IEEE |  |

## 1.4 References

IEEE Computer Society 1998 – Recommended Practice for Software Requirements Specifications.

BSBE website of IIT Indore -

## 1.5 Overview

The next chapter, the General Description section, gives an overview of the functionality of the portal. It describes the informal requirements and details of the portal.

The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

# 2. General Description

*It is a web based scheduling system, where a user can book 2 hour slots for working on the BSBE facilities, the confocal microscopy machine and the FACS machine. The current schedule will be displayed in the form of a calendar, and the user can simply choose the day and time depending on availability. The booking will be done on a secure payment basis. There will be 2 categories of users, one from IITI and other not from IITI. For authentication, an IITI user can simply login using his official email ID. Those not from IITI will need to fill in a few more details before payment.*

## 2.1 Product Perspective

*This subsection of the SRS puts the product into perspective with other related products or*

*projects. (See the IEEE Guide to SRS for more details).*

## 2.2 Product Functions

1) Provide an organized mechanism for booking facilities.

2) View the current schedule to prevent clashing of slots to ensure enhanced productivity.

## 2.3 User Characteristics

Anyone who wishes to use the BSBE facilities of IITI for confocal microscopy or performing cell sorting using fluorescence.

## 2.4 General Constraints

*This subsection of the SRS should provide a general description of any other items that will*

*limit the developer’s options for designing the system. (See the IEEE Guide to SRS for a partial list of possible general constraints).*

## 2.5 Assumptions and Dependencies

Payment gateway.

Access to IITI server.

Gmail account

# 3. Specific Requirements

The specific requirements of this software are as follows:

1. Scheduling program which is mostly defined in PHP. Hence PHP.
2. Server to store database and server that can handle the load of space and processing.
3. Software tool that connects PHP with database language to make software available online.
4. Manual modification portal of admin for modification of database files.
5. Etc., (Will update as software development progresses).

## 3.1 External Interface Requirements

### 3.1.1 User Interfaces

The user interface should be dynamic and interactive. Also the GUI must be similar to the official BSBE site, as this software will be linked on the site.

### 3.1.2 Software Interfaces

PHP part linking with the BSBE site back-end. Database to be maintained on IITI server. Other details are not yet completely decided.

### 3.1.3 Communications Interfaces

gmail.com or iiti.ac.in are used as interface.

## 3.2 Functional Requirements

### 3.2.1 Checking Availability

3.2.1.1 Introduction:

It helps to know the availability of machine on input day.

3.2.1.2 Inputs:

Date provided by the user.

3.2.1.3 Processing:

Processing takes place in the PHP part. It checks the database for the required data with the given specifications.

3.2.1.4 Outputs:

Displays the timing of available slots on the input date.

3.2.1.5 Error Handling

### 

### 3.2.2 Booking of slots:

3.2.1.1 Introduction:

Helps to book a machine for an interval on available day.

3.2.1.2 Inputs:

Available Time slot on the required day.

3.2.1.3 Processing:

Processing takes place in the PHP part. It checks the database for the required data with he given specifications and modifies the properties related to the data, and then redirects to the payment site.

3.2.1.4 Outputs:

Displays the confirmation of booking of the time slot by change in the colour of the block on the calendar.

3.2.1.5 Error Handling

**3.2.3 Status of the facilities:**

3.2.1.1 Introduction:

Gives information whether machines are working.

3.2.1.2 Inputs:

none.

3.2.1.3 Processing:

Processing takes place in the PHP part. It checks the database for data related to the availability of the FACS and confocal facility.

3.2.1.4 Outputs:

Displays the status of the facilities – working or closed.

## 3.2.1.5 Error Handling

## 3.4 Non-Functional Requirements

Non-functional requirements may exist for the following attributes. Often these requirements must be achieved at a system-wide level rather than at a unit level. The GUI will be matching with BSBE site. Apart from GUI there are other requirements as follows:

### 3.4.1 Performance

It cannot be decided now. Will be updated later.

### 3.4.2 Reliability

It will be completely reliable.

### 3.4.3 Availability

Not decided yet.

### 3.4.4 Security

There is nothing to really protect except for data of users which will depend on IITI server. Admin(The client) has to authenticate a new user every time. Once a person is authenticated he will be allowed to book later on with out authentication but has to confirm the usage by clicking the link sent to his/her gmail every time of booking.

### 3.4.5 Maintainability

We assure that it wiil not come to this. But in case, we are here for it.

### 3.4.6 Portability

Not decided yet.

## 3.5 Inverse Requirements

There are no inverse requirements as of now.

## 3.6 Design Constraints

There are few design constraints like:

1.It’s usage is restricted or altered according to availability and limits of IITI server.

2.It can only manage the schedule of 1 year period.

3.Limitations may occur due to internet or server problems, etc but will be managed as necessary.

4.Regular constraaints like space requirement, etc are also applicable.

## 3.7 Logical Database Requirements

We are going to use database of basic level with limited size requirements on IITI server. It has variables of size 10 bytes on average and atmost 30 bytes. Exact space requirements are not estimated yet.

## 3.8 Other Requirements

There are some authorization requirements from external devices and services like:

1.IITI server

2.Payment facilities by-

a.Paytm

b.Debit card/Credit card of ----------

# A. Appendices

Appendices are not yet updated.